

Ammunition stockpile management in Africa: challenges and scope for action

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Abstract

The improper management of conventional ammunition and explosives poses significant safety and security risks. Frequent ammunition depot explosions and diversions from ammunition stocks of state actors testify to the relevance of the issue to Africa. Overcoming challenges to effective national ammunition management can be a formidable task in itself. This paper considers the challenges to and scope for action on ammunition management in Africa. It is argued that concerted efforts by African states and their international partners will be essential to effectively limiting risks of undesirable explosive events and ammunition diversions on the continent.

Key words: Arms control, conventional ammunition, explosive events, diversions, Africa.

Résumé

La gestion des stocks de munitions en Afrique: défis et champ d'action

La gestion inappropriée des stocks de munitions et d'explosifs conventionnels pose d'importants risques de sécurité. Les explosions et les détournements, deux phénomènes fréquents affectant les dépôts et les stocks de munitions en Afrique, attestent de l'importance de cette question. Vaincre les défis d'une gestion efficace des munitions nationales peut s'avérer une tâche énorme en soi. Cet article examine les défis et le champ d'action de cette tâche en Afrique. Il soutient que des efforts concertés de la part des États africains et de leurs partenaires internationaux seront essentiels à une limitation effective des risques d'épisodes indésirables d'explosions et de détournements de munitions sur ce continent.

Mots clés : Maîtrise des armes, munitions conventionnelles, explosions, détournements, Afrique

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Introduction

The improper management of conventional ammunition and explosives poses significant safety and security risks. The explosions at military ammunition depots in Lagos in 2002 and in Maputo in 2007 killed more than 1,600 people. Training to high professional standards is critical to effective technical surveillance of ammunition and, therewith, for its safe and secure storage. Poor physical security systems and weak accounting and inventory procedures facilitate the diversion of state-held ammunition into the illicit sphere. Recent research demonstrates that ammunition is not only captured and stolen from state actors in Africa. In some cases, there persist continued diversions through state actors themselves. The establishment and maintenance of adequate national ammunition management systems can pose considerable challenges themselves for states not already operating such systems.

This paper provides an overview of the challenges to and scope for action on ammunition management in Africa. The following part considers the risks of improper ammunition management on the continent. It focuses on the issues of ammunition depot explosions, diversions of ammunition, and stocks of surplus ammunition. The paper then turns to prominent challenges to ammunition management in Africa and relevant multilateral standards. The paper concludes by considering further steps that could be taken to strengthen ammunition management capacities on the continent. It is argued that concerted efforts by African states and their international partners will be essential to effectively limit risks of undesirable explosive events and ammunition diversions in Africa.

1. Risks of improper ammunition management

The effective management of national ammunition stockpiles requires a comprehensive approach. Types and required levels of stockpiles need to be defined. Appropriate locations and physical security systems must be determined. Adequate inventory practices and regular inspection and surveillance must exist to allow for accurate classification and accounting. This is essential for ensuring safe handling and storage and for identifying surplus awaiting disposal. Surveillance and testing procedures are also critical to accurately assess the stability and reliability of ammunition. Personnel responsible for storage and surveillance must be adequately trained and educated. Weaknesses in management practices entail significant risks, especially undesirable explosions and diversions into the illicit sphere. Both risks are aggravated when national stockpiles contain unidentified and potentially instable surplus ammunition.

1.1 Ammunition depot explosions

Undesirable explosive events are triggered by a range of factors. One factor is the deterioration of the physical or chemical condition of ammunition. Specifically, the decomposition of propellant and the depletion of stabilisers therein can lead to a spontaneous ignition of the ammunition's explosives. The phenomenon is known in relation to some types of mortars. Inappropriate storage conditions that expose white phosphorous ammunition to high ambient temperatures are another factor. External environmental effects, such as fire and heat, can trigger explosive events as can unsafe storage practices or infrastructure, unsafe handling or transport practices, or sabotage. The risk of unintended explosions principally relates to military depots because the relevant ammunition types and calibres are mainly held by military forces. Nevertheless, explosives such as

grenades are also frequently held in police stores in African states.

Africa is a frequent site of ammunition depot explosions. At least 18 explosive events took place in the last decade (five in Mozambique, four in Sudan, two in each Guinea and Nigeria, and one each in Angola, Congo, Ivory Coast, Kenya, and Sierra Leone). This represents 11.5% of the 157 globally known explosive events during that period. The events in Africa claimed more than 1,700 fatalities and injured more than 850 people. The most devastating event took place in Lagos, Nigeria on 27 January 2002. It killed more than 1,500 people. The explosive event in Maputo, Mozambique on 22 March 2007 killed over 100 people and injured over 400.¹ The high number of casualties in the two events was due to the proximity of the depots to densely populated neighbourhoods.

1.1.1 Explosions at the Malhuzine ammunition depot

The history of explosions at the Malhuzine ammunition depot in Maputo in the first half of 2007 is a telling illustration of the risks of improper ammunition management. A first explosion, injuring three of the personnel at the depot, occurred in January 2007. An immediate technical assessment by adequately trained personnel of ammunition safety at the site may have helped in preventing the subsequent events: on the afternoon of 22 March 2007, an initial explosion was recorded at Malhuzine. It was followed by further explosions and fires that lasted until the next morning. Unexploded ordnance was projected over a 10km radius, hitting the local hospital amongst other infrastructure.

Mozambique's ministry of defence blamed the event on exceptionally hot weather. Outside observers suggest the autocatalytic decomposition of propellant in mortars or the ignition of inadequately stored white phosphorous ammunition as the event's likely cause.² In either case, the event indicates surveillance and proof failures to accurately identify and ensure the timely disposal of 'at risk' ammunition. A further failure occurred when local authorities did not ensure that there remained an adequate safety distance between the site and encroaching civilian habitation. Alternatively, no high explosive ammunition should have been held at a site that had come to be within only 200m of the nearest civilian habitation.

A third explosive event took place during the explosive ordnance clearance operation on 23 June 2007. The event killed five of the personnel and injured eleven.³ The event was likely caused by the inadequate training of the personnel and a failure to respect the technical requirements for the safe handling and destruction of unexploded ordnance. The costs for the clearance operation and, if relevant, the rebuilding of destroyed infrastructure and replacement of destroyed ammunition are likely to be significant.

1.2 Ammunition diversion

African-internal diversions of ammunition are an important source of illicit ammunition in the region. The diverted ammunition sustains Africa's armed conflicts, pastoralist and other violence,

¹ Data based on Wilkinson, Adrian. 2006. 'Stockpile management of ammunition', in Pézard, Stéphanie and Anders, Holger (eds.). 2006. *Targeting ammunition: a primer*. Geneva: Small Arms Survey, p. 248-253; and Wilkinson, Adrian. 2009a. *Ammunition stockpile safety*. Presentation given at Expert Workshop on Arms and Ammunition Stockpile Management, hosted by the Institute for Security Studies, Pretoria, South Africa, 6-8 April 2009.

² South Eastern and Eastern Europe Clearinghouse for the Control of Small Arms and Light Weapons (SEESAC). 2007. *Malhuzine (Mozambique) explosion site: 'quick look' technical summary and concepts for further support*. Belgrade: SEESAC, unpublished.

³ Wilkinson, 2009a.

banditry, and crime. One form of diversion is the illicit cross-border transfer of especially small arms and light weapons ammunition in violation of international arms embargoes. The reports of the UN panels on arms embargo violations in Africa document numerous cases. African states and individual officials supply armed groups in neighbouring or nearby states with ammunition for political and ideological reasons and/or financial or other gain.⁴ This includes the provision of fake end-user assurances and the re-transfer of foreign ammunition in violation of end-user undertakings towards the original ammunition exporter. A second form is the domestic transfer of ammunition in violation of national law and/or international law.

One type of domestic diversion is the capture or theft of ammunition from state actors. Ammunition may be captured on the battle field or through attacks on military convoys and depots. The *Congrès national pour la défense du peuple* (CNDP), an armed group based in the eastern Democratic Republic of Congo, was believed to mainly sustain its arms and ammunition needs through attacks on the national armed forces. There were six reported attacks by the CNDP on military armouries and depots between December 2007 and October 2008 only. In early November 2008, the CNDP attacked and captured up to twelve army trucks full of ammunition.⁵ Armed gangs repeatedly attacked police stations and army barracks in South Africa in the late 1990s. In May 1998, an extremist Afrikaner group that allegedly planned a coup d'État against the government robbed a military base in Bloemfontein of more than 100 firearms and 20,000 rounds of ammunition.⁶

Another type of domestic diversion is the distribution of ammunition by state actors or those under formal state authority to unauthorised end-users. The continued supply of small arms ammunition to armed militia groups in Darfur by the Sudanese government constitutes a clear violation of a UN embargo.⁷ Recent research into ammunition illicitly held by pastoralist groups in the tri-border area of Kenya, Sudan, and Uganda suggest that state security forces can be a major source. The research found the “the Kenya Police supplies almost 50 per cent of the ammunition that circulates illegally in Turkana North, ostensibly to provide the Turkana with some defence against rival groups in Sudan and Uganda.” Similar results were found in Sudan and Uganda, indicating that the state security forces in these states are, likewise, a major ammunition source for pastoralist violence in the two countries.⁸

1.3 Surplus ammunition

The risks of ammunition depot explosions and diversion are especially acute in states that fail to identify ammunition in their stockpiles that is surplus to national requirements and/or unsafe to use.⁹ The identification of surplus necessitates that states previously defined their national

⁴ See, for a recent example, UN Security Council. 2008a. *Report of the Panel of Experts established pursuant to resolution 1591 (2005) concerning the Sudan* (UN document S/2008/647). New York: UN, 11 November.

⁵ UN Security Council. 2008b. *Final report of the Group of Experts on the Democratic Republic of the Congo* (UN document S/2008/773). New York: UN, 12 December, p. 6-7, para. 25.

⁶ Lamb, Guy. 2000. *An Overview of Small Arms Production, Export, Ownership and Proliferation in South Africa*. Seminar paper, available at http://ccrweb.ccr.uct.ac.za/archive/staff_papers/lamb_small_arms.html

⁷ UN Security Council, 2008a, p. 51, para. 159.

⁸ Bevan, James. 2008. *Blowback: Kenya's illicit ammunition problem in Turkana North District* (Small Arms Survey occasional paper). Geneva: Small Arms Survey, p. 17-18.

⁹ See UN General Assembly. 2008. *Report of the Group of Governmental Experts to consider further steps to enhance cooperation with regard to the issue of conventional ammunition stockpiles in surplus* (UN document A 63/182). New York: UN, 28 July.

ammunition requirements for routine operational needs, maintaining a war reserve, and training purposes. This is not always the case. Surplus identification requires that states maintain an adequate accounting system and a clear oversight of the quantities, types, and condition of the ammunition that is held in the various military depots, police stores, and other stocks under state authority. Maintaining such oversight requires regular verification and physical inspections. Again, this is not always the case in African states.

The identification of unsafe or unreliable ammunition requires, as mentioned, adequate surveillance and proof. This should include adequately trained personnel and propellant test capabilities or records and samples against which propellant stability can be compared against. Indeed, much of the ammunition in African stockpiles should probably be considered as potentially unsafe. This is because the ammunition's safety and reliability can often not be correctly assessed in the absence of adequately trained personnel and test capabilities or records. Stockpiles in post-conflict states are especially affected by this due to the often encountered loss and destruction of records when depots are taken over from a previous regime.

2. Challenges to ammunition management

Some of the challenges to ammunition management in Africa were mentioned above; others still have to be raised. African states have regulatory frameworks in place for their ammunition management. But there often remain weaknesses in national standards and their implementation. Standard operating procedures that are required for the harmonised and system-wide implementation of specific management tasks are often missing. Stockpile inspections and surveillance operations are infrequent and little comprehensive in many states. Continued ammunition diversions by state actors in some African states indicate significant failures to respect and enforce national regulations. Research suggests that the enforcement of controls can be especially weak in relation to state-sponsored local defence units and militias.¹⁰ There is also a tendency amongst officials to overestimate the efficacy of national management systems. Constructive criticism by outside experts is ignored or brushed aside as misguided or politically motivated.

There is often a lack of technical understanding about the risks in relation to explosive such as grenades and ammunition containing high explosives. Frequent examples are the storage, handling, and transport of hand grenades by military and police personnel without a prior clearance by adequately trained explosive ordnance officers that the grenades are safe for the intended action. National understandings of adequate training differ. This is although the explosion risks of dealing with explosives are the same in every part of the world. The military doctrine of the Soviet Union accepted a greater tolerable risk of human casualties in the case of undesirable explosions than that of Western states. African states that received military training from the Soviet Union often still operate safety margins around explosives that fall short of international best practice.

More frequently talked about challenges in Africa are a lack of financial resources and technical equipment. Accounting and record-keeping systems are often still paper-based and may be fragmented even within the different state actors. This hinders the effective centralised oversight of the national ammunition stockpile. A lack of resources also constrains the rehabilitation and

¹⁰ In the case of Turkana North District, Kenya, it is local police and local defence units that are likely sources of illicit ammunition (Bevan, 2008).

modernisation of physical infrastructure. Depots and stores sometimes date back to the colonial times and provide inadequate storage capacities for the types and quantities of the stocked ammunition. Physical security measures of ammunition stocks can be limited to a padlock on a wooden door in an administrative building. Improved physical security measures cannot remove the risks of attack or theft. But they can increase deterrence and the time available to respond to an intrusion at a depot or other holding.

3. Multilateral standards

There exist a range of sometimes differing sub-regional standards on aspects of the management of ammunition for small arms and light weapons in Africa. Standards in the Southern African Development Community require the marking of small arms ammunition cartridges with head-stamps that indicate the country and year of manufacture, the calibre, and the manufacturer.¹¹ Standards adopted in the Economic Community of Western African States go further. They stipulate that cartridges are to be also marked with a unique lot number and that the smallest ammunition packaging units shall be marked with a unique serial number.¹² No comparable small arms ammunition marking standards exist in East and North Africa. Just under half of the eleven known African small arms ammunition producing states is located in the two sub-regions.¹³ In any case, no authoritative technical standards exist that comprehensively address ammunition stockpile management in Africa.

Outside the region, relevant standards were developed in South Eastern and Eastern Europe, including on ammunition and explosives storage and safety and on explosive ordnance clearance of ammunition storage area explosions.¹⁴ Standards and best practices on the management of conventional ammunition exist in the Organisation for Security and Co-operation in Europe and the North Atlantic Treaty Organisation.¹⁵ At the global level, ammunition safety is mainly addressed in standards on the transport of dangerous goods.¹⁶

It is welcome that the UN recently mandated the development of technical guidelines for the stockpile management of conventional ammunition.¹⁷ No such global guidelines exist so far. Their

¹¹ Southern African Regional Police Chiefs Cooperation Organisation (SARPCCO). 2008. *Standard Operating Procedures for the Implementation of the SADC Protocol on the Control of Firearms, Ammunition and Other Related Materials*. Windhoek, Namibia: SARPCO, chapter 3.3.1, p. 15.

¹² Economic Community of Western African States (ECOWAS). 2006. *ECOWAS Convention on Small Arms and Light Weapons, Their Ammunition and Other Related Materials*. Abuja, Nigeria: ECOWAS, 14 June, art. 18.3.a-b.

¹³ Africa's small arms ammunition producing states are Burkina Faso, Cameroon, Egypt, Kenya, Namibia, Nigeria, South Africa, Sudan, Tanzania, Uganda and Zimbabwe. See Anders, Holger. 2006. *Trade flows and controls of small arms ammunition transfers in Africa* (Note d'analyse). Brussels: Groupe de recherche et d'information sur la paix et la sécurité. <http://www.grip.org/bdg/g1057.html>

¹⁴ See, for example, SEESAC. 2006a. *Ammunition and Explosives Storage and Safety* (Regional Micro-Disarmament Standard 05.40). Belgrade: SEESAC; and SEESAC. 2006b. *EOD clearance of ammunition storage area explosions* (Regional Micro-Disarmament Standard 05.55). Belgrade: SEESAC.

¹⁵ Organisation for Security and Cooperation in Europe (OSCE). 2008. *OSCE Handbook of Best Practices on Conventional Ammunition* (OSCE decision no. 6/08): Vienna: OSCE; and North Atlantic Treaty Organisation (NATO). *Allied Ammunition Storage and Transportation Publications 1 and 2* (AASTP 1 and 2) - Safety Principles for the Storage and Transport of Military Ammunition and Explosives.

¹⁶ United Nations Recommendations on the Transport of Dangerous Goods Model Regulations.

¹⁷ UN General Assembly. 2009. *Resolution on problems arising from the accumulation of conventional ammunition stockpiles in surplus* (UN document A/Res/63/61). New York: UN, 12 January, para. 7.

development was recommended by a UN group of governmental experts on conventional ammunitions stockpiles in surplus in July 2008.¹⁸ The guidelines are to be based on sound science and engineering judgement and to assist states in developing national standards and standard operating procedures. They are also to contribute to cost-effectiveness, demonstrate technical agreement and consensus, and facilitate the technical exchange of information between states. They are expected to be presented to the UN in 2010.¹⁹

4. Scope for action

The challenges to effective ammunition management in Africa are not insurmountable. Efforts are made in many African states to implement multilateral standards on small arms and light weapons ammunition controls. But continued depot explosions and diversions in recent years suggest that further action is required. African states should review their national ammunition management systems with a view to define tolerable risks in light of available resources. As recommended by the UN in 2008, states should also systematically identify, “on a priority basis, surplus or obsolete conventional ammunition stockpiles” and “conduct destruction or demilitarisation operations of unsafe or potentially unsafe ammunition in a timely, safe and environmentally benign manner.”²⁰

African states should, where relevant, request financial, technical, and other assistance to strengthen national capacities for the effective management of national ammunition stockpiles. The UN is in the process of improving its knowledge resource management on ammunition technical issues. The aim of the UN effort is to better provide interested states “with appropriate technical expertise and guidance for the safe and secure storage of ammunition and the disposal of surplus stockpiles.”²¹ Practical assistance is also provided by technical non-governmental organisations. An example is the destruction of instable and unserviceable grenades in police stores in Burundi and the strengthening of the police stations’ physical security. The programme is implemented by a non-governmental organisation with a background in the clearance of explosive remnants of war.²²

Greater efforts by Africa states and their cooperation with international partners can make important contributions to strengthening national ammunition management capacities in Africa. They will be essential to effectively limit risks of undesirable explosive events and ammunition diversions in Africa.

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¹⁸ UN General Assembly, 2008, p.25, para. 72.

¹⁹ Wilkinson, Adrian. 2009b. *UN Ammunition technical guidelines*. Presentation given at Expert Workshop on Arms and Ammunition Stockpile Management, hosted by the Institute for Security Studies, Pretoria, South Africa, 6-8 April 2009.

²⁰ UN General Assembly, 2008, p. 25, paras. 68-69.

²¹ *Ibidem*, para. 73.

²² See <http://www.maginternational.org/news/burundi-supporting-human-security/> (20 April 2009).